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Representation and Number Theory Seminar

(Toric degenerations of Grassmannians and combinatorial mutations of their polytopes)

by

(Professor Fatemeh Mohammadi)
(Ghent University)

Abstract:

Toric varieties are popular objects in algebraic geometry, modelled on convex polytopes. This is mainly because there is a dictionary between their geometric properties and the combinatorial features of their polytopes. This dictionary can be extended from toric varieties to arbitrary varieties through toric degenerations.

In this talk, I will first recall the notion of toric degenerations which generalizes the fruitful correspondence between toric varieties and polytopes to arbitrary varieties. Then I will show some prototypic examples of toric degenerations of Grassmannians. I will describe how to obtain such degenerations using the theory of Gröbner fans and tropical geometry and show the relations among their associated Newton-Okounkov bodies.

Date : February 22, (Tuesday)

Time : 9:00am – 10:00am (Hong Kong SAR)

Zoom link :

<https://cuhk.zoom.us/j/97838822137?pwd=ZTVvSC9abmNjR3RCcS9FTzJNTVhXdz09>

Meeting ID: 978 3882 2137

Passcode : sesame

All are Welcome